

Weekly report (2017-8-28 ----- 2017-9-3)

Sept 3rd, 2017, 20:14 pm

1. Progress

Table 1. Progress

Tasks	DUE DATE	TASKS IN PROGRESS
Dimensionality reduction	Sept 30 th , 2017	Read some related papers and try to implement the common algorithms.

2. Research

2.1 paper reading

1. Scalable nearest neighbor algorithms for high dimensional data

The author proposed new algorithms for approximate nearest neighbor matching and evaluate and compare them with previous algorithms. The author also released all his work as an open source library named fast library for approximate nearest neighbors (FLANN). For the reason that I didn't much get to know about this paper, I will read again.

2. Scalable recognition with a vocabulary tree

The author proposed a hierarchical Term Frequency Inverse Document Frequency (TF-IDF) scoring using hierarchically defined visual words that form a vocabulary tree. The most important contribution in this paper is an indexing mechanism that enables extremely efficient retrieval.

3. Fast approximate nearest-neighbor search with k-nearest neighbor graph

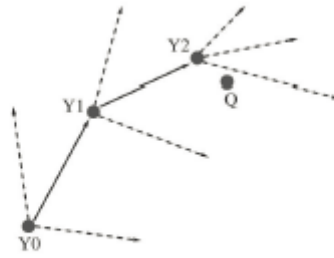


Figure 2: The GNNS Algorithm on a simple nearest neighbor graph.

This paper builds a k-nn graph for the approximate NN search problem, they use the k-nn graph and greedy search to find the closet node to the query. The author also introduces an algorithm named Graph Nearest Neighbor Search and compares this algorithm with other algorithms like KD-tree and LSH.